ADC Solo

User manual

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Chapter 1

Introducing the ADC Solo

This chapter draws attention to important safety precautions and introduces the ADC Solo.

ADC Solo features

The ADC Solo is a Digitizer for image plates retaining latent X-ray images. It has been developed by Agfa.

- The ADC Solo accepts one cassette containing one image plate at a time. The ADC Solo:
  - takes the cassette containing the image plate from the cassette slot;
  - removes the image plate from the cassette;
  - scans the image plate;
  - converts the information of the latent image to digital data;
  - transmits the image data to the preview station;
  - erases the image plate and re-inserts it into the cassette;
  - gives the cassette ID data the status ‘erased’;
  - returns the cassette;
  - transmits the digital image data to an image processing station (‘destination’).
- The ADC Solo permits assigning the status ‘emergency’ to an image. An emergency image will be given priority by the image processing station.
- The ADC Solo permits re-erasing an image plate before re-using it. In specific cases, this is necessary to prevent ghost images caused by previous exposures or stray radiation from interfering with the image of interest.
- If the ADC Solo is dedicated to one ID Station, additional features are available:
  - quickly identifying cassettes without the need for an ID Tablet;
  - reading the identification data of a cassette;
  - initializing a cassette, i.e. changing the image plate type.

Safety precautions

General safety instructions

- For software and other technical platforms, and/or in combination with any consumable, which constitute, after installation, a system for the interpretation of medical image data: such system is used by trained and qualified professionals. It is the user's responsibility to ensure that image quality, display quality, environmental lighting and other possible distractions are consistent with the clinical application. The user must be aware, that automatic collimation could possibly lead to misinterpretation of the image.
- The ADC Solo has been designed for scanning medical X-ray image plates and should only be used for these purposes.
- The ADC Solo must only be operated by qualified staff.
- Make sure that the ADC Solo is constantly monitored in order to avoid inappropriate handling, especially by children.
- Only trained service personnel must make repairs. Only authorized service personnel must make changes to the ADC Solo.
- If there is any visible damage to the machine casing, do not start nor use the ADC Solo.
- If you want to connect the ADC Solo with other devices, components or assemblies and if the technical data do not permit determining whether the combination with these devices, components or assemblies involves hazards, you must consult the respective manufacturers to avoid danger for operating personnel or the environment.
- Do not override or disconnect the integrated safety features.
- Switch off the ADC Solo before performing any maintenance work or repairs. Disconnect the ADC Solo from the mains before making repairs or performing any maintenance activities during which live electrical components may be exposed.
- As is the case for all technical devices, the ADC Solo must be operated, cared for and serviced correctly.
- If you don’t operate the ADC Solo correctly or if you don’t have it serviced correctly, Agfa-Gevaert is not liable for resulting disturbances, damages or injuries.
- When installing the ADC Solo, care must be taken to ensure that there is either a mains plug or an all-cable disconnecting device in the internal installation fitted near the ADC Solo and that it is easily accessible.
- If you notice conspicuous noise or smoke, disconnect the ADC Solo immediately.
- Check that the voltage setting of the machine matches the power supply voltage before connecting the machine to the mains.

Safety instructions for laser products

The ADC Solo is a Class 1 Laser Product. Under normal operating conditions - when the service doors are closed - there can be no laser radiation outside the ADC Solo.

- Open the lower front door only to replace the erasure lamps or the fuses. Open the right side panel only to solve cassette or image plate jams. When you open the lower front door or the right side panel, the power supply is switched off automatically as a precaution.
- Follow meticulously the operation and troubleshooting instructions in the ADC Solo User and Reference Manual. Other actions can be hazardous.

Safety compliance

The ADC Solo complies with:

- the general safety regulations EN 60950, EN 60601-1-2, UL 1950 and CSA C22.2 No. 950;
- the radio interference regulations EN 55022:1997, Class B and FCC 47, Part 15, Subchapter B, Class A;
- the laser safety regulations EN 60825-1:1994 and DHHS/FDA 21 CFR, Parts 1040.10 and 1040.11.

Operating modes

The ADC Solo can be operated in three modes: operator mode, key-operator mode, and service mode.

Operator mode

The operator mode groups all basic functions which are aimed at radiographers:

- Reading an image plate;
- Reading an emergency image plate;
- Re-erasing an image plate;
- Reading the identification data of a cassette (Dedicated configuration only);
- Changing the image plate type (Dedicated configuration only).

All functions of the operator mode are described in *Chapter 2, 'Basic operation ('Operator mode')'*.

Key-operator mode

The key-operator mode groups advanced functions which are aimed at technicians.

The key-operator mode can be accessed via the Key-operator key on the keypad and is menu-driven. The key-operator functions are described in *Chapter 3, 'Advanced operation ('Key-operator mode')'* of the ADC Solo Reference manual.

Service mode

The service mode functions are reserved for trained service personnel. They are password protected.

Configurations

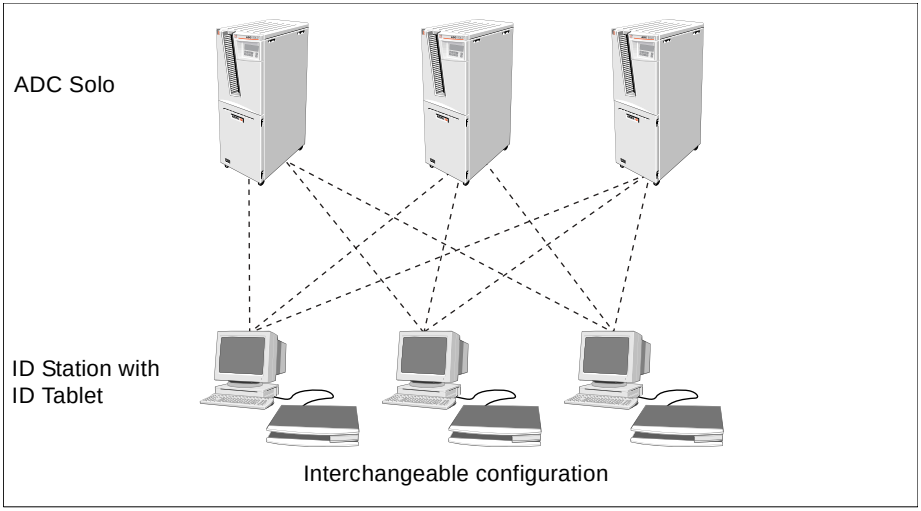
The ADC Solo can be used in two configurations: either one or more ID Stations serve a range of Digitizers, or one ID Station is dedicated to one Digitizer. The ID Software installed on the ID Station is slightly different depending on the configuration. For more information, contact your local service organization.

Interchangeable configuration

One or more ID Stations can serve a range of Digitizers, provided that each ID Station has an ID Tablet. There is no physical link required between the ID Station and the Digitizer.

In this configuration, a cassette can be identified via any of the ID Stations and subsequently be scanned using any of the Digitizers. The patient demographic data and examination data are entered via the ID Station and stored in the memory chip of the ADC cassette via the ID Tablet. As a result the identification data are linked to the cassette and any Digitizer can be used to scan the cassette.

The interchangeable configuration permits the flexible use of several Digitizers and ID Stations depending on the workload.

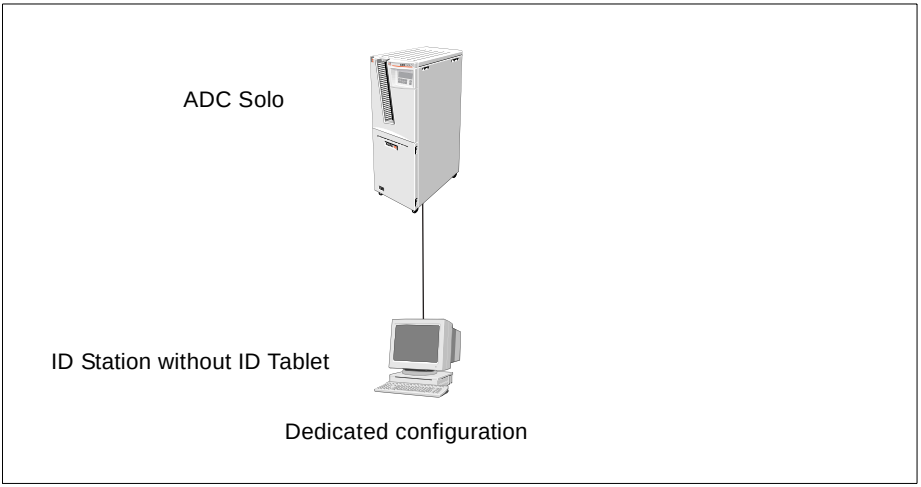


Interchangeable configuration

Dedicated configuration

If one ID Station is dedicated to one Digitizer, cassettes can be identified without using an ID Tablet. The identification data are transmitted from the ID Station to the Digitizer via the network.

The dedicated configuration reduces the time required for identifying and scanning a cassette because both actions can be performed simultaneously.



Dedicated configuration

❖ *In the dedicated configuration, you can still use the ADC Solo to digitize cassettes which have been identified on other ID Stations.*

The user interface

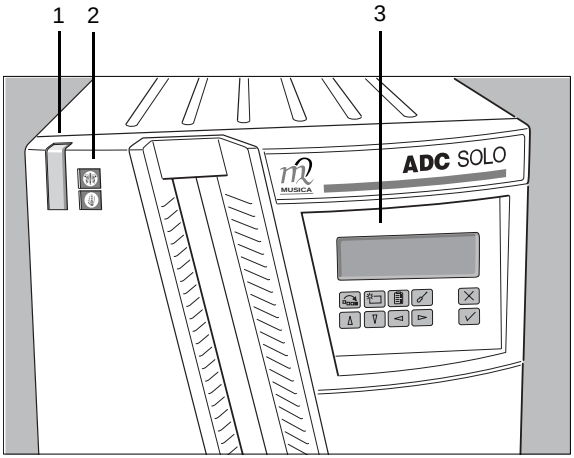
The ADC Solo has three operation modes:

- the **operator mode** for basic operation;
- the **key-operator mode** for advanced operation;
- the **service mode** reserved for trained service personnel.

The functions of the operator mode are described in *Chapter 2, 'Basic operation ('Operator mode')'*. An overview of the functions of the key-operator mode is given in *'Survey of advanced functions ('Key-operator mode')' on page 48*. For detailed information on the key-operator mode, refer to the ADC Solo Reference manual.

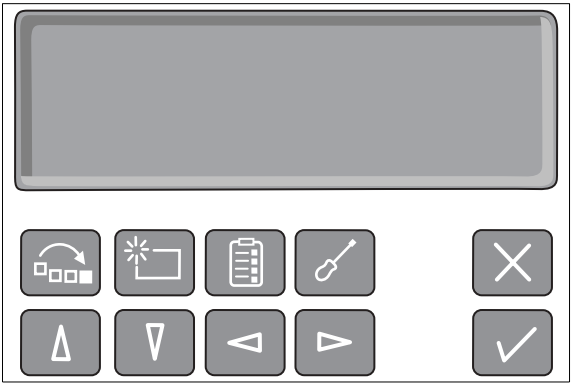
The ADC Solo interfaces with the user via:

- a keypad and a display;
- a status indicator;
- emergency buttons;
- audio signals.



1	Status indicator
2	Emergency buttons
3	Keypad and display

The keypad



The ADC Solo keypad features the following keys:

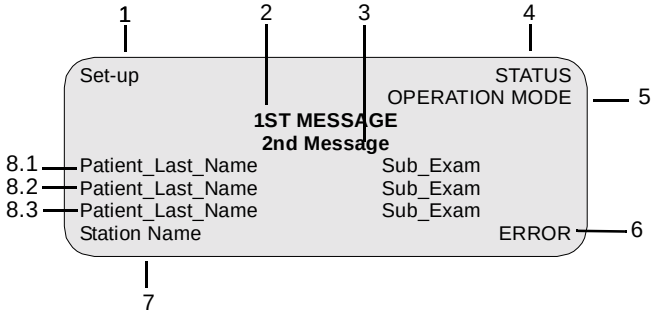
	Emergency key	To give an image the status ‘emergency’ when it is sent to the image processing station. This key can only be used for cassettes with ID data.
	Erase key	To erase images without digitizing them. This must be done if: • an image plate has not been used for more than 3 days; • an image plate has been exposed to an exceptionally high X-ray dose.
	Key-operator key	To access advanced functions (‘key-operator functions’).
	Service key	To access service-level functions. Reserved for trained service personnel.
	Escape key	To quit the current function or exit a menu without saving modifications.
	Confirm key	In key-operator mode: • to select a menu. • to accept an entry in a menu and go back to operator mode.

	**Up** key	• To move the cursor to the previous entry field. • To scroll upwards. • To increment the number in a numeric entry field.
	**Down** key	• To move the cursor to the next entry field. • To scroll downwards. • To decrement the number in a numeric entry field.
	**Left** key	• To scroll backwards through multiple choices within a field. • To move the entry position in a numerical entry field from right to left. • To toggle between values in a field.
	**Right** key	• To scroll forwards through multiple choices within a field. • To move the entry position in a numerical entry field from left to right. • To toggle between values in a field.

The display

The ADC Solo control panel has a backlit LCD display with 8 lines of 40 characters each. Its lay-out depends on the operating mode.

- In **operator mode**, the display has dedicated areas for specific information:



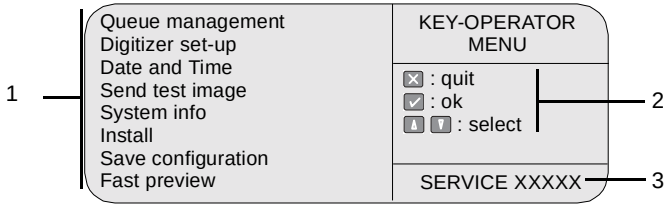
1	Set-up of image processing station: • [blank]: Default image processing station selected. • Off line: Transmission to all image processing stations disabled. • [process.station] not ready: Image processing station not available. • [process.station] rerouted: Images rerouted to other image processing station.
2	Type of message
3	Extra comment or action to take
4	System status: • READY: The ADC Solo is ready for operation. • BUSY: The ADC Solo is treating an image plate. • ERROR: An error has occurred. Refer to *'Troubleshooting checklist' on page 50*. • LOCKED: id. • WARNING: id.
5	Operation mode: • [blank]: Normal operation mode. • EMERGENCY: Emergency function for image plates with ID data. • EMERGENCY BUTTON: Emergency function for image plates without ID data. • ERASURE: Re-erasure function. • DIRECT ID: Operation in dedicated configuration.
6	Error status: service code (SERVICE XXXXX) or error code (CODE XXXXX)

7	Station name of the ADC Solo
	Identifier of image plate being treated:
8.1	After image ID data is read;
8.2	During scanning of image plate and transmittal of image data;
8.3	During transmittal of image data to image processing station.

The operator main screen is:

When the ADC Solo is treating an image plate, it displays the following screen:

- In **key-operator mode**, operation is menu driven. The menu displays the key-operator functions, the active keys, and the service code.



1	Key-operator functions
2	Active keys
3	Service code

- In **operator mode** and in **key-operator mode**, both informational and warning messages can be displayed. Informational messages are displayed as black text against a white background; warning messages are displayed in reverse mode.

The status indicator

The light at the top of the ADC Solo indicates the status of the ADC Solo.

Color	Constant/ Flashing	Status	Action
Green	**Constant**	Ready.	Proceed.
	Flashing	Busy (treating image plate).	Wait.
Red	**Constant**	Error.	• Check display for messages. • Refer to *'Troubleshooting checklist' on page 50*.
	Flashing	• Reading identification data of a cassette. • Initializing a cassette.	Wait.
	Flashing	• Locked or warning. • Power on/self-test in progress. • Key-operator mode. • Service mode. • ADC Solo not connected to image processing station.	• Check display for messages. • Refer to *'Troubleshooting checklist' on page 50*.

Emergency buttons

Two emergency buttons are located at the front of the ADC Solo. The emergency buttons determine the speed class, i.e. the sensitivity, which will be used to digitize the image plate. The sensitivity associated with the emergency buttons has been set during the configuration of your system. For more information, contact your local service organization.

The emergency buttons have the following labels:

	For digitizing images of the trunk.
	For digitizing images of the limbs.

- In the **interchangeable configuration**, the emergency buttons permit you to digitize emergency image plates without ID data.

- In the **dedicated configuration**, the emergency buttons permit you to digitize an image plate while you are entering the identification data via the ID Station.

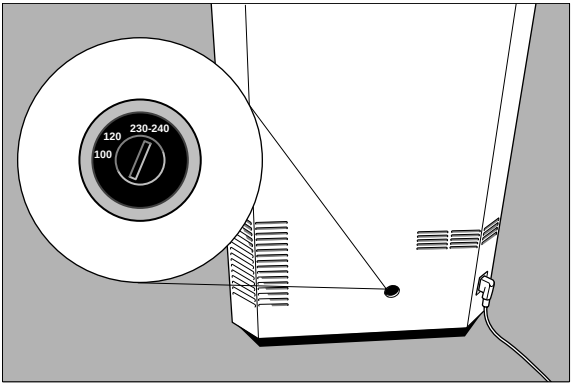
Audio signals

The ADC Solo gives status information via beeps. The length of the beep indicates the response of the system to a key command.

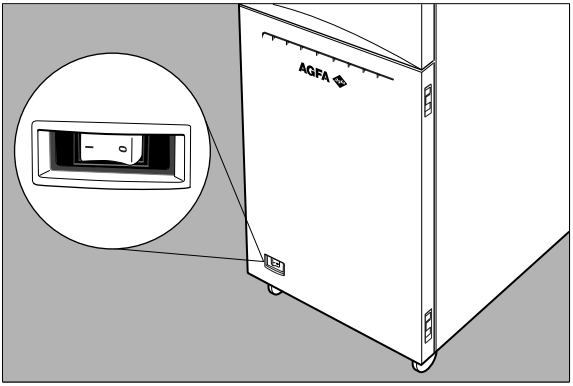
- A **short** beep means that ADC Solo has accepted the key command and is starting the operation.
- A **long** beep means that you have pressed a non-active key or that the ADC Solo has rejected the key command.
- An **interval** beep accompanies an error, locked or warning message. Refer to *'Troubleshooting checklist' on page 50*.

Switching on the ADC Solo

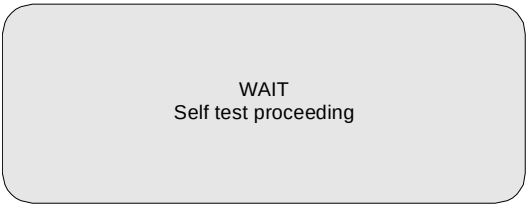
1 Make sure that the setting of the voltage selector at the back of the machine matches the power supply voltage.



2 Locate the main switch and place it in position ‘I’.



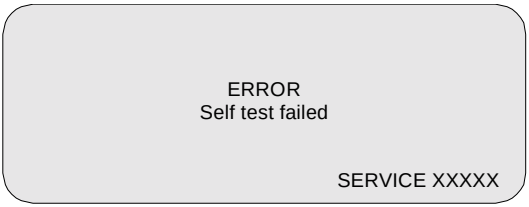
The machine starts a self-test which may take up to 3 minutes. The following screen is displayed:



❖ *During the self-test, you cannot activate any functions.*

If the ADC Solo has completed the self-test successfully, the ADC Solo enters the operator mode and displays the operator main screen:

❖ *If the ADC Solo displays:*



contact your local service organization.

Switching off the ADC Solo

Before switching off

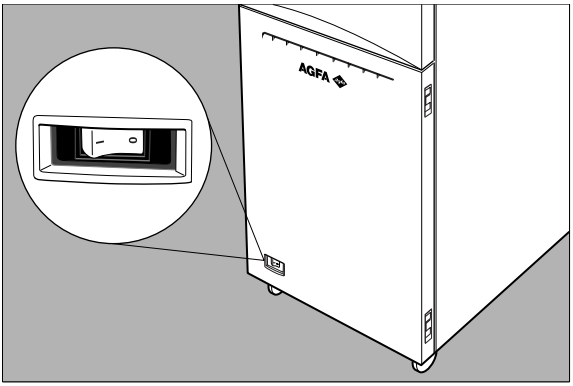
Check that the ADC Solo is not scanning an image plate. If the ADC Solo is scanning an image plate, the status indicator at the top of the machine is green and flashing.

Switching off

It is recommended to switch off the ADC Solo at the end of the day.

Only switch off the ADC Solo if you do not intend to digitize emergency image plates overnight. Switching on the ADC Solo takes approximately 3 minutes. During this time emergency digitizing is not possible!

Place the main switch in position ‘0’.



Chapter 2

Basic operation (‘Operator mode’)

This chapter provides basic information on how to digitize image plates under normal conditions and in emergency situations. It also treats how to re-erase an image plate to prevent ghost images caused by previous exposures or by stray radiation. These functions are available in operator mode.

Workflow

The workflow for identifying cassettes and digitizing image plates depends on the configuration of your system.

- In the **interchangeable configuration** a cassette is uniquely identified by the identification data in the cassette chip. Therefore, you must first identify the cassette via the ID Station with ID Tablet before you can digitize the image plate. Refer to *'Reading an image plate in the interchangeable configuration' on page 25*.

  - *An exception are emergency image plates which you can digitize without having identified the cassette. The unidentified emergency image plate will be given default ID data. Refer to 'Reading an emergency image plate in the interchangeable configuration' on page 31.*

- In the **dedicated configuration** the identification data are transmitted from the ID Station to the dedicated ADC Solo via the network. Therefore, the ADC Solo can digitize the image plate while you are entering the identification data on the ID Station. Refer to *'Reading an image plate in the dedicated configuration' on page 28*.

Reading an image plate

The main function of the ADC Solo is digitizing image plates and transmitting the digital image data to the preview station and the image processing station. The actual workflow depends on the configuration of your system.

Reading an image plate in the interchangeable configuration

In the interchangeable configuration, you must first identify the cassette via an ID Station with ID Tablet before you can digitize the image plate.

To read an image plate:

1 Make sure the cassette has been identified properly via the ID Station.

2 Check that the ADC Solo is ready for operation:

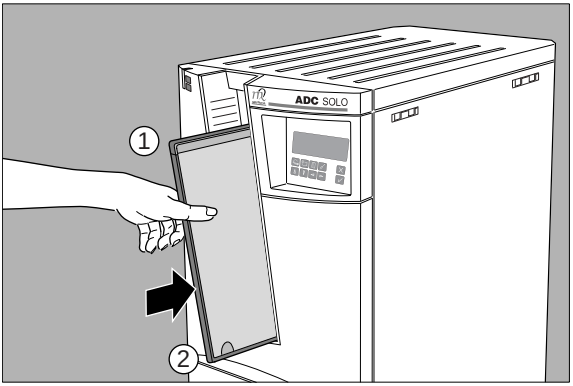
- the ADC Solo must display the operator main screen with ‘Ready’ status, e.g.:

- the status indicator at the top of the ADC Solo must be green and be lit constantly.

❖ *The ADC Solo is operational if the status field equals ‘READY’, even if status messages of the destination are shown (e.g. ‘VIPS not ready’).*

3 Insert the cassette containing the image plate into the cassette slot of the ADC Solo as shown below.

Make sure to insert the cassette with the hinge [1] at the top and the locking mechanism [2] at the bottom.



While treating the image plate, the ADC Solo will display the following screen:

The ADC Solo:

- reads the cassette identification data;
- converts the information of the latent image to digital data;
- if fast preview is enabled, transmits the digital image data in blocks of typical 100 lines to the preview station;
- erases the image plate and re-inserts it into the cassette;
- gives the cassette ID data the status ‘erased’;
- returns the cassette;
- transmits the digital image data to the image processing station (‘destination’).

When the ADC Solo has treated the cassette, it displays the operator main screen.

❖ *If the ADC Solo displays an error message, refer to ‘Troubleshooting checklist’ on page 50.*

4 Remove the cassette from the cassette slot.

When the ADC Solo returns the cassette, it is ready to be re-used immediately. However, if you leave it for more than 3 days before re-using it, you must re-erase it first. Refer to 'Re-erasing an image plate' on page 38.

Reading an image plate in the dedicated configuration

In the dedicated configuration, the ADC Solo can digitize the image plate while you are entering the identification data via the ID Station.

To read an image plate:

1 Check that the ADC Solo is ready for operation:

- the ADC Solo must display the operator main screen with 'Ready' status, e.g.:

- the status indicator at the top of the ADC Solo must be green and be lit constantly.

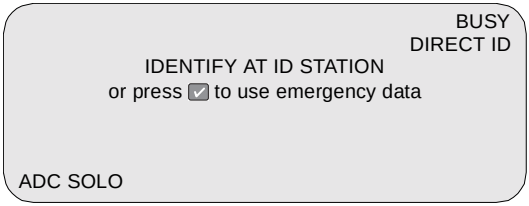
❖ *The ADC Solo is operational if the status field equals 'READY', even if status messages of the destination are shown (e.g. 'VIPS not ready').*

2 Press the appropriate emergency button at the front of the ADC Solo.

The emergency button determines the speed class, i.e. the sensitivity, which will be used to digitize the image plate.

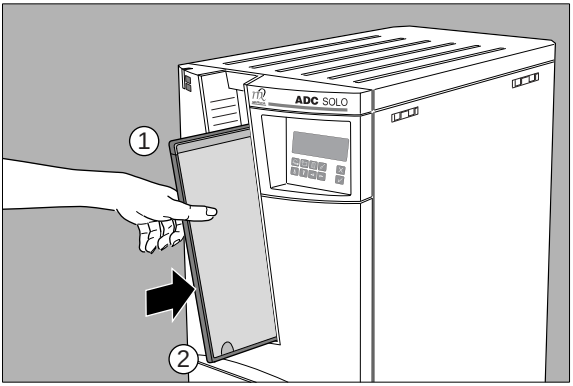
	For digitizing images of the trunk.
	For digitizing images of the limbs.

The button which you have pressed will be lit and the display will read:



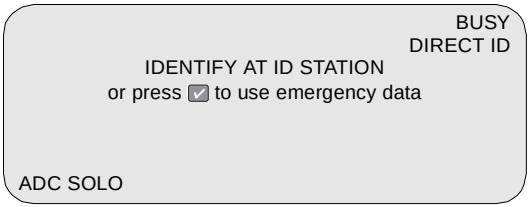
3 Insert the cassette containing the image plate into the cassette slot of the ADC Solo as shown below.

Make sure to insert the cassette with the hinge [1] at the top and the locking mechanism [2] at the bottom.



The ADC Solo starts digitizing the image plate. You can enter the identification data, refer to step **4**.

While treating the image plate, the ADC Solo will display the following screen:



The ADC Solo converts the information of the latent image to digital data.

❖ *If the ADC Solo displays an error message, refer to Chapter 3, 'Advanced operation ('Key-operator mode')'.*

4 Enter the identification data via the ID Station.

For detailed information, refer to the User manual of the ADC ID Software.

As soon as you have entered the identification data, the ADC Solo displays:

If fast preview is enabled, the image data are sent to the preview station as soon as you have entered the identification data. The image data are sent in blocks of typical 100 lines. For more information, refer to the User manual of the ADC Preview Software.

As soon as the ADC Solo has digitized the entire image plate and you have entered the identification data:

- the ADC Solo erases the image plate and re-inserts it into the cassette;
- the ADC Solo gives the cassette ID data the status ‘erased’.
- the cassette is returned to the cassette slot;
- the digital image data is sent to the image processing station (‘destination’).

When the ADC Solo has treated the cassette, it displays the operator main screen.

5 Remove the cassette from the cassette slot.

When the ADC Solo returns the cassette, it is ready to be re-used immediately. However, if you leave it for more than 3 days before re-using it, you must re-erase it first. Refer to ‘Re-erasing an image plate’ on page 38.

Reading an emergency image plate

You may have an image plate which you wish to give priority over other image plates which are being processed by the image processing station. Such image plates are referred to as 'emergency image plates'. The actual workflow depends on the configuration of your system.

Reading an emergency image plate in the interchangeable configuration

In the interchangeable configuration, you can treat either:

- emergency image plates with ID data via the Emergency key on the keypad;
- emergency image plates without ID data via the emergency buttons at the front of the ADC Solo.

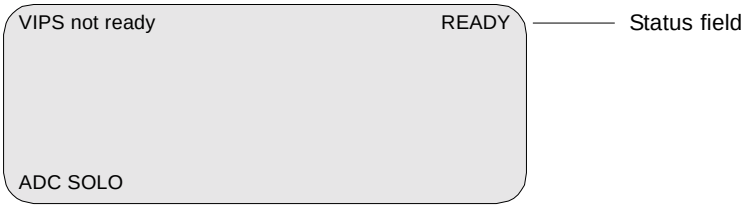
Reading emergency image plates with ID data

To read an emergency image plate with ID data:

1 Make sure the cassette has been identified properly via the ID Station.

2 Check that the ADC Solo is ready for operation:

- the ADC Solo must display the operator main screen with ‘Ready’ status, e.g.:



- the status indicator at the top of the ADC Solo must be green and be lit constantly.

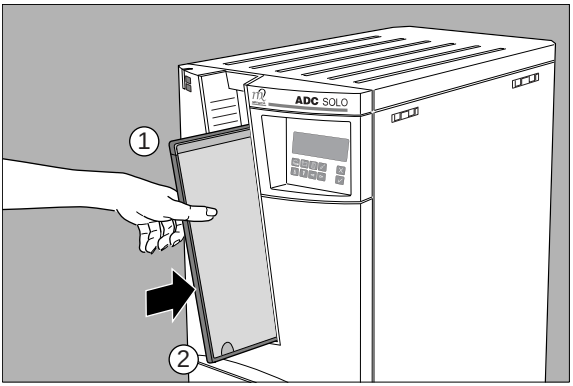
❖ *The ADC Solo is operational if the status field equals ‘READY’, even if status messages of the destination are shown (e.g. ‘VIPS not ready’).*

3 Press the Emergency key on the keypad.

The display will read:

The emergency status will only be assigned to the first image plate which you insert into the ADC Solo cassette slot after pressing the Emergency key.

4 Insert the cassette containing the emergency image plate into the cassette slot as shown below. Make sure to insert the cassette with the hinge [1] at the top and the locking mechanism [2] at the bottom.



When the ADC Solo has treated the emergency image plate, it displays the operator main screen. The image processing station will give the emergency image priority over the other images in the image processing queue.

❖ *If you do not enter a cassette within 1 minute after pressing the Emergency key or if you enter a cassette without ID data, the ADC Solo will quit the emergency function and return to the operator main screen.*

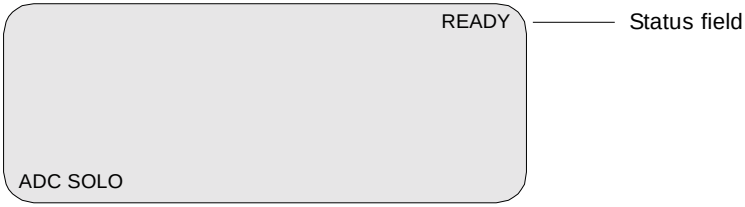
5 Remove the cassette from the cassette slot.

Reading emergency image plates without ID data

To read an emergency image plate without ID data:

1 Check that the ADC Solo is ready for operation:

- the ADC Solo must display the operator main screen with ‘Ready’ status, e.g.:



- the status indicator at the top of the ADC Solo must be green and be lit constantly.

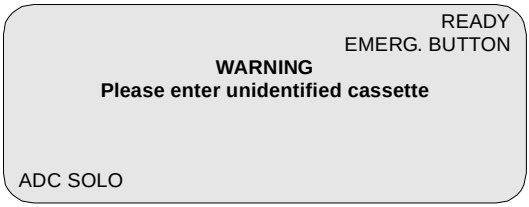
❖ *The ADC Solo is operational if the status field equals ‘READY’, even if status messages of the destination are shown (e.g. ‘VIPS not ready’).*

2 Press the appropriate emergency button at the front of the ADC Solo.

The emergency button determines the speed class, i.e. the sensitivity, which will be used to digitize the image plate.

	For digitizing unidentified emergency images of the trunk.
	For digitizing unidentified emergency images of the limbs.

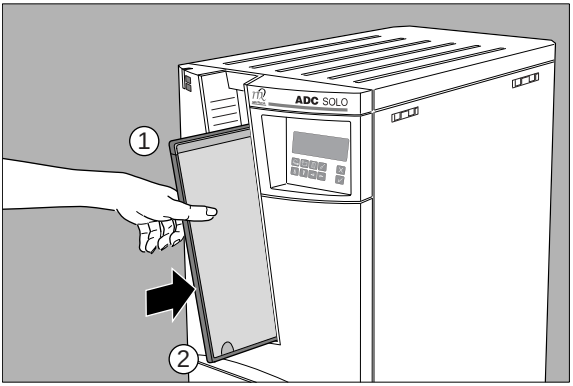
The button which you have pressed will be lit and the display will read:



⚠ ***The emergency status will only be assigned to the first image plate which you insert in the ADC Solo cassette slot after pressing the emergency button.***

3 Insert the cassette containing the emergency image plate into the cassette slot as shown below.

Make sure to insert the cassette with the hinge [1] at the top and the locking mechanism [2] at the bottom.



The image plate will be digitized using the speed class, i.e. the sensitivity, corresponding to the emergency button as defined during configuration.

When the ADC Solo has treated the emergency image plate, it displays the operator main screen. The digital image data are transmitted to the image processing station accompanied by default ID data. The image processing station will give the emergency image priority over the other images in the image processing queue.

- *If you do not enter a cassette within 15 seconds after pressing the emergency button, the ADC Solo will quit the emergency button function and return to the operator main screen.*

- *To change the speed class corresponding to the emergency button, contact your local service organization.*

4 Remove the cassette from the cassette slot.

Reading an emergency image plate in the dedicated configuration

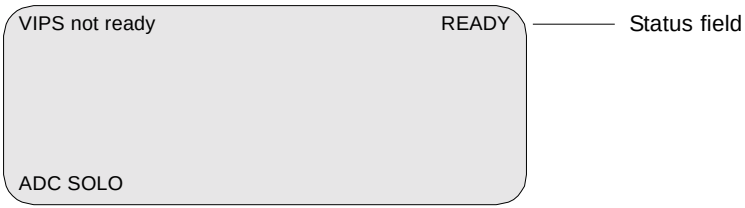
In the dedicated configuration, you can digitize unidentified emergency image plates. The digital image data will be assigned default ID data.

To digitize an emergency image plate, you must press the Confirm key after you have inserted the cassette (refer to step 4). Image data transmission to the preview and the image processing station will be suspended until you have pressed the Confirm key.

To read an emergency image plate:

1 Check that the ADC Solo is ready for operation:

- the ADC Solo must display the operator main screen with ‘Ready’ status, e.g.:



- the status indicator at the top of the ADC Solo must be green and be lit constantly.

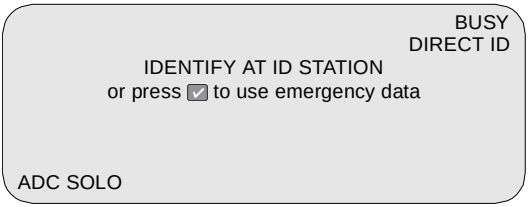
❖ *The ADC Solo is operational if the status field equals ‘READY’, even if status messages of the destination are shown (e.g. ‘VIPS not ready’).*

2 Press the appropriate emergency button at the front of the ADC Solo.

The emergency button determines the speed class, i.e. the sensitivity, which will be used to digitize the image plate.

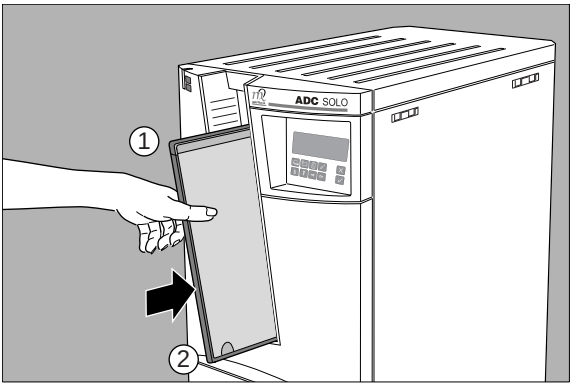
	For digitizing images of the trunk.
	For digitizing images of the limbs.

The button which you have pressed will be lit and the display will read:



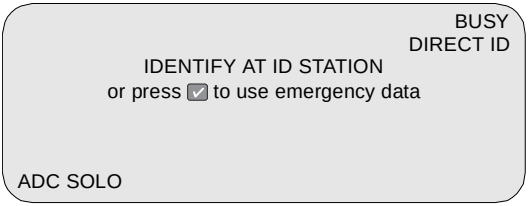
3 Insert the cassette containing the image plate into the cassette slot of the ADC Solo as shown below.

Make sure to insert the cassette with the hinge [1] at the top and the locking mechanism [2] at the bottom.



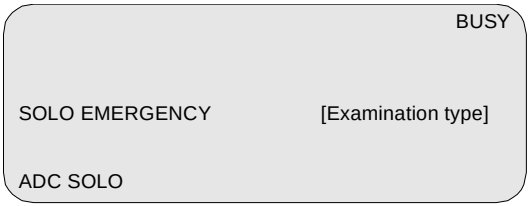
The ADC Solo starts digitizing the image plate.

While treating the image plate, the ADC Solo will display the following screen:



4 Press the Confirm key.

The ADC Solo displays:



- If you pressed the emergency button for digitizing images of the limbs, [Examination type] equals ‘Extremities‘.
- If you pressed the emergency button for digitizing images of the trunk, [Examination type] equals ‘Corpus’.

When the ADC Solo has treated the emergency image plate, it displays the operator main screen. The digital image data are transmitted to the image processing station accompanied by default ID data. The image processing station will give the emergency image priority over the other images in the image processing queue.

5 Remove the cassette from the cassette slot.

Re-erasing an image plate

At the end of a normal or emergency digitizing cycle, the ADC Solo returns an erased image plate. However, in the following cases, you must re-erase the image plate before re-using it in order to prevent ghost images from interfering with the image of interest:

- If the image plate has not been used for more than 3 days.
  In this case, the image plate may have been exposed to stray radiation.
- If an image plate has been exposed to an exceptionally high X-ray dose.
  In this case, deep layers of the image plate may still retain a latent image after standard erasure. Leave the image plate to rest at least one day before re-erasing it.

You can erase image plates which you have given the status ‘to be erased’ via the ID Station or image plates which have the status ‘erased’.

Re-erasing image plates with status ‘erased’

To re-erase an image plate which has been erased as part of a normal or emergency digitizing cycle:

1 Check that the ADC Solo is ready for operation:

- the ADC Solo must display the operator main screen with ‘Ready’ status, e.g.:

- the status indicator at the top of the ADC Solo must be green and be lit constantly.

2 Press the Erase key on the keypad.

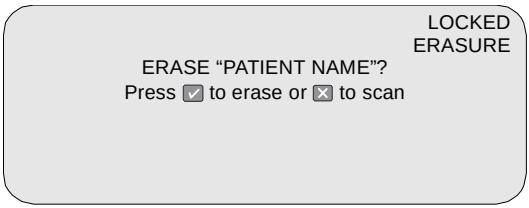
The display will read:

3 Insert the cassette into the cassette slot.

While erasing, the ADC Solo will still display the above screen. When the ADC Solo has erased the image plate, it displays the operator main screen.

Warning

If the above screen is not displayed but the display reads:



you have entered a cassette with ID data not having the status ‘erased’. You now have the choice: either cancel erasing or erase the image plate.

- To cancel erasing and make a regular scan: press the Escape key.

- To erase the image plate: press the Confirm key.

  While erasing, the ADC Solo will display:

  READY
  ERASURE

  WARNING
  The next cassette will be erased

  Put cassette in slot or press ☒ to quit

  When the ADC Solo has erased the image plate, it displays the operator main screen.

4 Remove the cassette from the cassette slot.

Re-erasing image plates with status ‘to be erased’

To re-erase an image plate which you have given the status ‘to be erased’ via the ID station:

1 Check that the ADC Solo is ready for operation:

- the ADC Solo must display the operator main screen with ‘Ready’ status, e.g.:

- the status indicator at the top of the ADC Solo must be green and be lit constantly.

2 Insert the cassette into the cassette slot.

The ADC Solo will automatically erase the image plate. The display will read:

When the ADC Solo has erased the image plate, it displays the operator main screen.

3 Remove the cassette from the cassette slot.

Reading the identification data of a cassette (Dedicated configuration only)

In the dedicated configuration, the identification data stored in the memory chip of the cassette can be read via the ADC Solo.

To read the identification data of a cassette:

1 Check that the ADC Solo is ready for operation:

- the ADC Solo must display the operator main screen with ‘Ready’ status, e.g.:

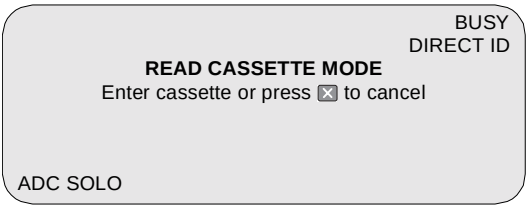
- the status indicator at the top of the ADC Solo must be green and be lit constantly.

❖ *The ADC Solo is operational if the status field equals ‘READY’, even if status messages of the destination are shown (e.g. ‘VIPS not ready’).*

2 In the ID Software on the ID Station, select the mode for reading cassettes.

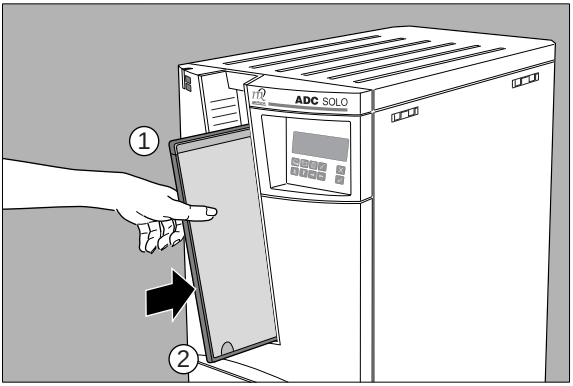
Refer to the User manual of the ID Software.

The display of the ADC Solo will read:



3 Insert the cassette containing the image plate into the cassette slot of the ADC Solo as shown below.

Make sure to insert the cassette with the hinge [1] at the top and the locking mechanism [2] at the bottom.



While the ADC Solo reads the identification data from the cassette chip, the status indicator at the top of the machine is red and flashing.

The identification data will be displayed on the ID Station. Subsequently, the ADC Solo returns the cassette to the cassette slot and displays the operator main screen.

4 Remove the cassette from the cassette slot.

Changing the image plate type (Dedicated configuration only)

If you use new generation ADC phosphor plates, the cassettes containing the plates must first be initialized. The new generation of plates can be identified by the plate type and the initializing code printed on the back (e.g. MD 30 19).

If you purchased cassettes already containing ADC phosphor plates, the cassettes are ready for use. If you purchased ADC phosphor plates or cassettes separately, the cassettes must be initialized first.

In the dedicated configuration, you can initialize cassettes via the ADC Solo.

To initialize a cassette:

1 Check that the ADC Solo is ready for operation:

- the ADC Solo must display the operator main screen with 'Ready' status, e.g.:

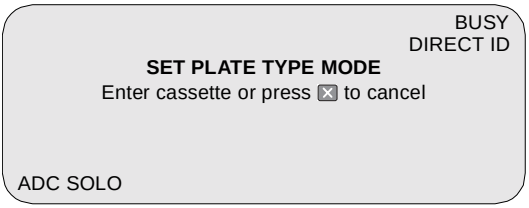
- the status indicator at the top of the ADC Solo must be green and be lit constantly.

❖ *The ADC Solo is operational if the status field equals 'READY', even if status messages of the destination are shown (e.g. 'VIPS not ready').*

2 In the ID Software on the ID Station, select the mode for initializing cassettes.

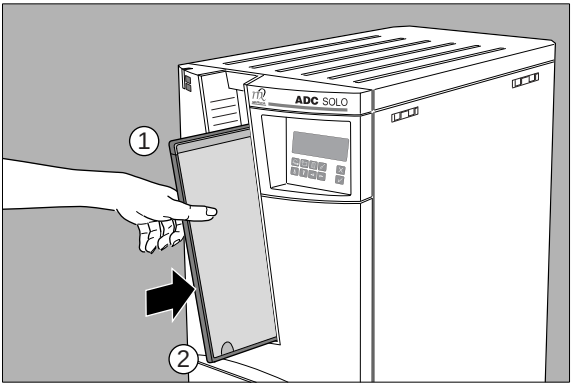
Refer to the User manual of the ID Software.

The display of the ADC Solo will read:



3 Insert the cassette containing the image plate into the cassette slot of the ADC Solo as shown below.

Make sure to insert the cassette with the hinge [1] at the top and the locking mechanism [2] at the bottom.



4 Enter the initialization code in the ID Software.

Refer to the User manual of the ID Software.

While the ADC Solo the initializes the cassette, the status indicator at the top of the machine is red and flashing.

When the cassette has been initialized, the ADC Solo returns the cassette to the cassette slot and displays the operator main screen.

5 Remove the cassette from the cassette slot.

Chapter 3

Advanced operation (‘Key-operator mode’)

This chapter gives an overview of the key-operator functions, preventive maintenance actions and troubleshooting. For detailed information on these topics, refer to the Reference manual.

Survey of advanced functions (‘Key-operator mode’)

A survey of the functions which are available in key-operator mode is given below. For detailed information, refer to *Chapter 3, ‘Advanced operation (‘Key-operator mode’)’ of the ADC Solo Reference manual.*

Function in key-operator main menu	Section in Reference Manual	Page
Queue management	*‘Consulting the image transmission queue (‘Queue management’)’*.	*48*
Digitizer set-up	*‘Customizing the ADC Solo (‘Digitizer set-up’)’*.	*52*
Date and Time	*‘Setting the date and time’*.	*57*
Send test image	*‘Sending test images’*.	*58*
System info	*‘Consulting information on the ADC Solo’*.	*59*
Install	*‘Installing a new software version’*. *‘Installing a new language’*. *‘Installing new customer parameters’*.	*59* *69* *75*
Save configuration	*‘Saving the configuration data on a diskette (backup)’*.	*81*
Fast preview	*‘Enabling/disabling fast preview’* *‘Setting the fast preview station for emergency image plates’*	*85* *87*

Checking the image quality

The only maintenance action which you must perform is checking the image quality. Refer to the Reference manual of the image processing system.

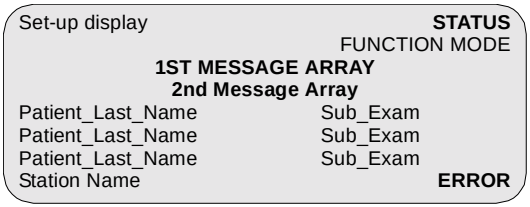
Troubleshooting checklist

A survey of possible problems is listed below. If corrective actions are straightforward, they are given below. The more elaborate troubleshooting procedures are explained in detail in *Chapter 4, 'Preventive maintenance and troubleshooting' of the ADC Solo Reference manual.*

General errors

Error	Action
The ADC Solo does not start up.	Refer to *'Checking the voltage supply' on page 101* of the Reference manual.

Errors during operation



Status field:	**ERROR**
Error field:	'SERVICE XXXXX'
Contact your local service organization.	

Status field:	**ERROR**	
Error field:	'CODE XXXXX'	
MESSAGE 1	**Message 2**	**Action**
POWER SUPPLY OUT OF TOLERANCE	1. Check setting of voltage selector switch on back panel. 2. Check fuses of the machine 3. Check supply voltage.	Refer to *'Checking the voltage supply' on page 101* of the Reference manual.

Status field: Error field:	**ERROR** 'CODE XXXXX'	
IP JAM	1. Remove right side panel 2. Put plate back into cassette. 3. Close right side panel.	Refer to *'Solving image plate and cassette jams' on page 104* of the Reference manual.

Status field:	**WARNING**	
MESSAGE 1	**Message 2**	**Action**
ERASURE LAMP [X], [Y], [Z] DEFECTIVE	Press ☑ to complete, IP is not erased	• Press Confirm key. • Refer to *'Replacing the erasure lamps' on page 96* of the Reference manual.
SCANNER WARNING	Possible bad image, press ☑	• Press Confirm key. • Contact your local service organization.
[PPNAME] NOT READY	Please check and press ☑	• Check image processing station. • If image processing station is ready, press Confirm key.
CORRUPTED MESSAGE IN QUEUE	Please press ☑ and check queue	• Press Confirm key. • Refer to *'Consulting the image transmission queue ('Queue management')' on page 48* of the Reference manual.
UNKNOWN DESTINATION [PPNAME]	Please press ☑ and check queue	• Press Confirm key. • Refer to *'Consulting the image transmission queue ('Queue management')' on page 48* of the Reference manual.
ERROR WHILE LOADING LANGUAGE FILE	Default language is used, please press ☑	• Press Confirm key. English will be used. • Restart ADC Solo. • If the problem persists, contact your local service organization.

Status field:	WARNING	
MESSAGE 1	**Message 2**	**Action**
PARTLY SCANNED IP DETECTED	Possible loss of image, press ☑	• Press Confirm key. • Check image at destination.

Status field:	LOCKED	
MESSAGE 1	**Message 2**	**Action**
IP NOT SUFFICIENTLY ERASED	Press ☑ and erase again	• Press Confirm key. • Refer to *'Re-erasing an image plate' on page 38*.
EMPTY CASSETTE	Press ☑ to get cassette	• Press Confirm key. • Remove cassette. • Insert cassette containing image plate.
CASSETTE WRITE ERROR	Press ☑ to get cassette	• Press Confirm key. • Remove cassette. • Use another cassette. • If problem persists with other cassettes, contact your local service organization.
WRONG CASSETTE	Press ☑ and remove cassette.	• Press Confirm key. • Remove cassette. • Insert correct cassette in the right way.
CASSETTE IDENTIFICATION ERROR	Press ☑, remove and identify	• Press Confirm key. • Remove cassette. • Re-identify cassette. • Re-insert cassette.
CASSETTE READ/ WRITE ERROR	Press ☑, remove and try again	• Press Confirm key. • Remove cassette. • Re-insert cassette. • If problem persists, initialize and identify cassette via ID Station. • If problem persists with other cassettes, contact your local service organization.

Status field:	LOCKED	
MESSAGE 1	**Message 2**	**Action**
CASSETTE NOT IDENTIFIED	Press ☑, remove and identify	• Press Confirm key. • Remove cassette. • Identify cassette. • Re-insert cassette.
24 X 30 CM CALIBRATION MISSING	Press ☑ to accept or ☒	• Press Confirm key to treat 24 x 30 cm image plate without calibration or press Cancel key to treat cassettes with other formats. • Contact your local service organization.
SERVICE MODE	Please wait	Wait.
CASSETTE SLOT BLOCKED	Remove cassette, press ☑	• Remove cassette. • Remove obstructing objects. • Press Confirm key.
IMAGE-QUEUE FULL	Check queue	• Refer to *'Consulting the image transmission queue ('Queue management')' on page 48* of the Reference manual. • Check that the ADC Solo is not off line (Refer to *'The display' on page 15*).
UNKNOWN DESTINATION [PPNAME]	Press ☑, remove cassette and identify	• Press Confirm key. • Remove cassette. • Identify cassette. • Re-insert cassette. • Check the configuration of the system.
RIGHT SIDE PANEL NOT CLOSED	Close right side panel	Close the right side panel.
UNKNOWN IP-TYPE	Press ☑, remove cassette, call Service.	• Press Confirm key. • Remove cassette. • Contact your local service organization.
EMERGENCY DATA NOT DEFINED	Emergency keys disabled, press ☑	• Press Confirm key • Contact your local service organization.

Errors when handling diskettes

Error	Action
Wrong or missing volume label	• Remove floppy. • Insert floppy with correct label. • Press Confirm key.
Floppy not formatted	• Remove floppy. • Insert formatted floppy. • Press Confirm key.
Floppy full	• Remove floppy. • Insert empty formatted floppy. • Press Confirm key.
Floppy write protected	• Remove floppy. • Remove write protection from floppy. • Re-insert floppy. • Press Confirm key.

Appendix A

Equipment information sheet

Specifications

Product description	
Type of product	Digitizer
Commercial name	ADC Solo
Model number	5155
Original seller/manufacturer	Agfa-Gevaert NV-Mortsel
Labelling	
CE	93/42 EEC 'Medical Devices' (Europe)
UL	UL 1950, CSA 22.2 No. 950 (North America)
CUL	(North America)
Dimensions	
Length, at cassette slot	730 mm
Length, at foot	700 mm
Width	450 mm
Height	1408 mm
Weight	
Unpacked	215 kg
Electrical connection	
Operating voltage	Europe: 230 V ± 10% USA: 120 V + 6%, -10% Japan: 100 V ± 10%
Mains fuse protection	Europe: 16 A, slow blow USA & Japan: 15 A, slow blow
Mains frequency	50/60 Hz

Power consumption	
Standby	
• 230 V/ 50 Hz configuration	230 W
• USA: 120 V/ 60 Hz configuration	216 W
• Japan: 100 V/ 60 Hz	220 W
During operation	
• 230 V/ 50 Hz configuration	max. 1610 W
• 120 V/ 60 Hz configuration (USA)	max. 1440 W
• 100 V/ 60 Hz (Japan)	max. 1500 W
Environmental requirements	
Room temperature	15 °C - 30 °C
Maximum temperature change	0.5 °C/min.
Relative humidity	10 % - 75 %
Magnetic field (Dynamic)	compliant with EN 61000-4-8, Level 5
Sunlight exposure	not be operated in full sunlight
Warming-up time	
• Cold start	fully operational after max. 30 min.
• Warm start	fully operational after self-test if not switched off for more than 3 min., after 30 min. operation
Cassette format	**corresponding IP format**
24 x 18 cm	238 x 178 mm
30 x 24 cm	298 x 238 mm
35 x 35 cm	354 x 354 mm
35 x 43 cm	354 x 430 mm
30 x 15 cm	298 x 148 mm
12 x 10”	303 x 252 mm
10 x 8”	252 x 201 mm

Physical emissions	
Noise emission (sound power level according to ISO 7779)	
• During scanning	max. 65 dB(A)
• Standby	max. 45 dB(A)
Radio frequency emission	according to EN 55022:1997, Class B and FCC, Part 15, Subchapter B, Class A
Heat emission	
• During scanning	max. 1610 W
• Standby	230 W
Cassette return time	60 - 72 secs
End of Life	
Estimated product life (if regularly serviced and maintained according to Agfa instructions)	7 yrs.

Appendix B

ADC Compact cassette

Safety precautions

Observe great care whenever removing the image plate from the ADC Compact cassette. Refer to the cleaning procedure described further on in this manual.

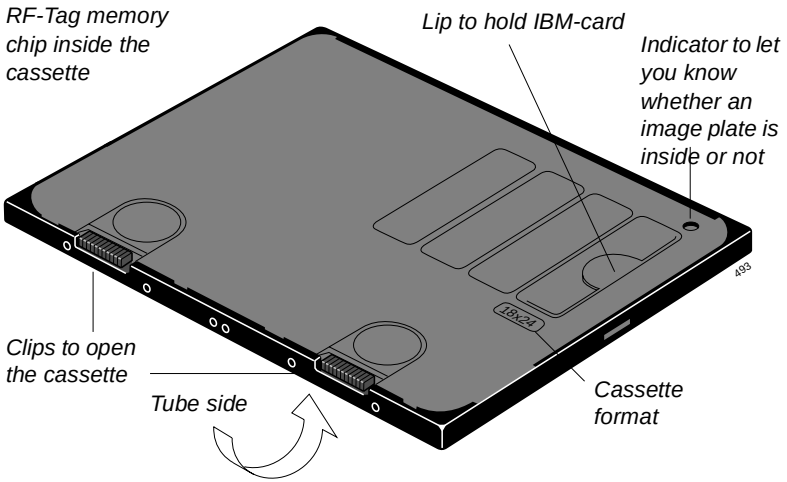
Make sure that the automatic exposure control device is placed above the cassette, to prevent patients from receiving an overdose of X-rays. When it is located underneath the cassette, the backscatter protection (lead) contained in the red side of the cassette, retains a certain amount of X-rays. The dose measured by the cell will then be much lower than the dose actually given to the patient.

❖ *The image plate causes a specific X-ray scattering. This influences the response of the exposure control device. To compensate for this, recalibration of the device for the use with ADC Compact cassettes could be necessary.*

Description of the ADC Compact cassette

The ADC Compact cassette and plate are compatible with existing X-ray tables. The exposure equipment and routines do not have to be modified when switching from conventional to digital imaging. Although compatible with existing X-ray equipment, an ADC Compact cassette is quite different from a conventional cassette. The most important difference lies inside, in the image receptor.

ADC Compact cassettes and ADC 70 cassettes are not interchangeable. But the same image plates can be used for both.



Embedded memory

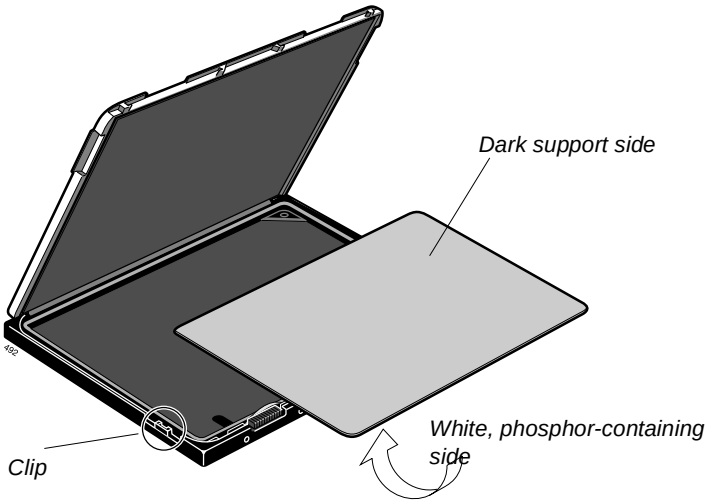
The main difference lies in the RF-tag memory chip that is permanently mounted in the cassette. Using the ADC ID Software you can enter patient demographics and examination data into the memory chip. The identification of this data is performed by no-touch radiofrequency tagging via a built-in antenna card in the ADC Compact cassette.

Image plate

Another difference between an ADC Compact cassette and a conventional cassette is the X-ray sensitive element (image receptor). The latter is no longer a film, but an image plate that can be re-used thousands of times.

The way in which this image plate is placed into the cassette is of great importance. The side containing the white phosphor must be oriented towards the black tube side of the cassette. The dark support side is then oriented towards the red side of the cassette, as shown in the illustration below.

The ‘clips’ mounted on the cassette prevent the cassette from being opened by a conventional daylight system such as the Curix Capacity (Plus), so that even in hybrid conventional/digital departments the occurrence of errors is avoided.



Cleaning the image plate

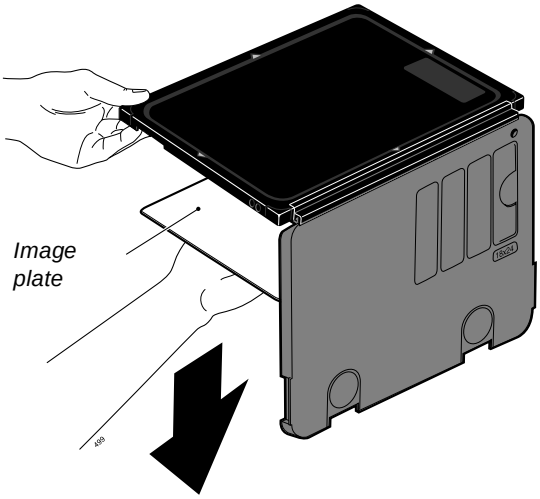
The inner lining of the ADC Compact cassette body is made of Bayer Makrolon polycarbonate. This ensures a high degree of protection against electrostatic charging and dust collection on the ADC image plates. Nonetheless, it is recommended to clean the image plates once a month using the following procedure:

1 Open the cassette with the red side up.

2 Put your hand on the image plate with the cassette in a horizontal position. Make sure that you do not press on the plate.

3 Turn the cassette over, holding the image plate in position with your other hand.

4 Take away the cassette. The image plate remains lying on your hand.



5 When necessary, clean extreme contamination with ADC Digital Screen Cleaner.

6 Moisten a cellulose cloth (non-fluffy) with the cleaning agent.

7 Rub the cleaner softly and evenly over the whole surface of the screen.

8 Leave the cassette with the clean screens open for approximately 10 minutes to enable the solvent to evaporate.

9 Reassemble the cassette.

Make sure that the white side of the image plate, containing the phosphor, is oriented towards the (black) tube side of the cassette.

> ***Ensure that the image plate is within the flange on the inside of the cassette. If you put the image plate into the cassette differently, e.g. if the image plate lies partly in between the hinge of the cassette, it can be irreparably damaged.***

Cleaning the cassettes

When necessary, you can clean the outside of the ADC cassettes with soft water and soap or a detergent solution, with ADC Digital Screen Cleaner or with benzine. The inside should always be cleaned with ADC Digital Screen Cleaner.

Never clean the cassette with ethyl alcohol, methyl alcohol or diethylic ether.

Technical specifications of the ADC Compact cassette

Sizes

- 35 x 43 cm (14 x 17")
- 35 x 35 cm (14 x 14")
- 24 x 30 cm
- 18 x 24 cm
- 8 x 10"
- 10 x 12"
- 21 x 43 cm (by partial scan of dedicated 35 x 43 cm cassettes)
- 35 x 43 cm HR high resolution cassette
- 35 x 35 cm HR high resolution cassette
- 15 x 30 cm dental cassette

Standards

- DIN 6832 part 1 & 2
- ANSI/NAPM IT 1.49-1995
- IEC 406 (draft 1995)

Weight

- 35 x 43 cm typical 1.6 kg

Material

- Body ABS (Acrylonitryl Butadiene Styrene)

- Corners — Polyurethane Rubber (PUR)
- Hinge — Polypropylene (PP)
- Inner lining — Makrolon

Identification

- Memory chip (RF-tag card) embedded in the cassette

Backscatter protection

- 150 μ lead

Technical specifications of the image plate

Sizes

- 35 x 43 cm (14 x 17")
- 35 x 35 cm (14 x 14")
- 24 x 30 cm
- 18 x 24 cm
- 8 x 10"
- 10 x 12"
- 15 x 30 cm

Plate construction

Protective layer	Electron beam cured polymer
Phosphor	BaSrFBrI:Eu
Base	P.E.T.

Characteristics

Its luminescence spectrum is the typical Eu^{2+} -luminescence, which is at around 390 nm in lattices of the BaFBr-type. The top in the luminescence spectrum is shifted slightly to longer wavelengths due to the incorporation of iodide.

The stimulation spectrum is much broader than that of pure BaFBr and is shifted to longer wavelengths. This shift is caused in the first place by the partial replacement of Ba by Sr, and in the second place by the incorporation of iodide. Thanks to the red-shift of the stimulation spectrum, maximum stimulability is assured at 633 nm, the wavelength of the stimulating laser.

The Agfa phosphor has excellent dark decay characteristics. Two hours after exposure, approximately 80% of the energy stored upon exposure is still available. The image retention is greater than 50% up to 24 hours after irradiation.

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